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OBSERVATIONS ON QUANDONG TREES, *SANTALUM ACUMINATUM*

By Mrs. M. B. MILLS, Merredin

PART I

Since the drought years of 1968-69, I have been making observations on Quandong trees throughout Merredin district. In June 1973, I received a letter from Dr. M. S. Buttrose of the C.S.I.R.O. Division of Horticultural Research, Adelaide, South Australia, making enquiries about Quandong trees. This added to my previous interest, and I stepped up my activities regarding Quandong tree observations.

During August 1973 Dr. Buttrose visited Western Australia and came to Merredin to see our Quandong trees. Our first stop for investigations was in the town, in Mr. and Mrs. Rutherford's garden. Here three mature trees and a number of small ones were growing, all the trees looking healthy, growing amidst flowers, shrubs and trees.

One Quandong tree and some small ones were of particular interest. In a slightly curving line on a flower bed was a row of small Quandong trees, about a dozen of them extending for almost 25 ft. Previously Mr.

Rutherford had told me that he and his wife had discovered while digging around shrubs in their garden that these little Quandong trees were all connected by a long, single root system to the parent tree. Dr. Buttrose and I were able to see for ourselves the strong root system extending from the parent tree and the little trees growing vertically from it. Mr. and Mrs. Rutherford had removed several of these little trees and transplanted them into pots. However they did not survive.

A visit was then made to a group of Quandong trees on Chandler Road, about ten miles north of Merredin. There was a large number of healthy mature, but rather small trees on an incline amidst Eucalypt trees, *Acacia* and scrub. These trees would receive a good run off of water from the incline. One tree in this group had a large, red flowering Mistletoe on it, but this seemed to have little effect on the tree, as it produces fruit each year, a heavy crop, followed by a light crop. Nearly all the trees in this group bear good crops of fruit, every other year, as it seems to be their habit to rest a year between fruiting.

Close by, and north of this group is another stand of Quandong trees, which differ somewhat from the first group, in that they are much larger and taller, and their leaves are broad and fleshy. The fruit is large and loose skinned around the nut, whereas in the first mentioned ones the fruit is bright red and fitting tightly around the nut. There is also a slight difference in the flavour of the fruit. The trees in this group bear large amounts of fruit every other year.

A visit was also made to view Quandong trees on York road, east of Merredin. One particular tree was marked out for continued observations, this was a small Quandong tree growing near the roadside, in sandplain country in heavy yellow sand. This tree had a parasitic vine closely entwined about it, the Dodder vine, and as it has no contact with the ground, growing on the Quandong, it would appear to sap its vitality. However the little Quandong tree does bear quite a lot of fruit, a dark red, tasty fruit.

It was decided to keep a special watch on two stands of trees, those on Chandler road to be known as No. 1 group and the Quandong tree on York road with the Dodder vine entwined on it to be known as the Quandong Dodder plant.

Observations were taken on Quandong trees on Mrs. Ada Blair's property, Homelands Farm, Southern Cross, July 31, 1973. I visited Mrs. Blair's property and Mrs. Blair showed me a group of Quandong trees growing naturally in her garden. They looked healthy and were bearing large green fruit, some of it starting to turn red. The trees were about eight years old, very tall, the tallest Quandong trees I have yet seen. We estimated their height to be 25 ft. These trees had grown straight up-right, not in their usual rather bushy manner. The main trunk was very slender. A shelter had been erected near this group of Quandong trees and Mr. and Mrs. Blair thought perhaps this had something to do with their extraordinary height. They bear fruit each year, which is very clean and free from grubs and dirt. The soil around them has been frequently cultivated with cow manure added to it, also a lot of dried leaves from other types of trees near by. Mr. Blair told me that the soil is a rich red loam. The soil around the trees appeared to be warm and humid. There was a lot of grass about the trees, perhaps barley grass or wild oats.

Mr. and Mrs. Blair showed me the small Quandong trees which had come up naturally from seeds scattered about the mature trees two years previously. It was most surprising to see hundreds of little trees as thick as the grass they were growing amongst. I counted 50 little trees in one square foot. The height of the little trees ranged from just showing through the soil to two or three inches in height.

A young Quandong tree about four years old was shown to me where it had germinated close against a wall of a galvanised iron shed, with another building a few feet away. This young tree was tall and slender, about 5-6 ft. in height, and with a slender main trunk, as in the case of the trees previously mentioned. The manner of growth could be likened to a slender young Eucalypt sapling.

Other trees further over in the orchard were more compact and

bushy as is the usual habit of these trees. They were all healthy and bearing fruit, the ground well cultivated and fertilised with cow manure. The soil where all these trees are growing is quite wet, but not boggy.

In April 1973 over three inches of rain was recorded in 24 hours, and there had been other earlier good falls of rain.

During the winter I examined a group of young Quandong trees on Nungarin road, about five miles north of Nokanning. There were 128 small trees in the group ranging in height from six inches to almost 2 ft. The little trees looked healthy and were growing close to one mature Quandong tree which appeared rather old and straggly. I dug around some of the little trees with a spade to see if they were connected by a root system, but they had germinated from seed.

There was a big, old eucalypt growing close to the trees otherwise the area was clear of trees or scrub, except for a heavy covering of grass and wild oats around the trees. The land was low-lying and appeared to receive a lot of water as run-off from the railway line near by.

THE BIRDS OF BALD ISLAND

By G. T. SMITH

INTRODUCTION

Bald Island is 45 km east of Albany and lies 1.2 km from the mainland. It is a small island of 770 ha, 4.6 km by 2.3 km at its widest point, bounded by a steep escarpment with numerous heavily vegetated gullies running into the sea.

Storr (1965), who visited the island from May 30 to June 4, 1959, has described the geology, vegetation and birds of the island. He classified the vegetation into six formations:— Succulent mat (*Carpobrotus aequilaterus*, *Displyna australe*, *Rhagodia baccata*); Tussock land (*Poa caespitosa*, *Scirpus nodosus*, *Lepidosperma gladiatum*); Heath (*Melaleuca parviflora*, *M. microphylla*, *Thryptomene saxicola*); Peppermint scrub (*Agonis flexuosa*); Bushy Yate forest (*Eucalyptus lehmannii*); Teatree forest (*Melaleuca pubescens*).

This article lists the birds recorded on two short trips to the island on October 27-29, 1971 and April 29 to May 3, 1976.

BIRD LIST

Little Penguin, *Eudyptula minor*. Common around the NW, N and NE sides of the island. The sandy gullies running into Barker Bay on the north side had large numbers of burrows, probably of this species.

Great-winged Petrel, *Pterodroma macroptera*. Burrows of this species were common in the NW half of the island, wherever the sand was deep enough. Found in the Succulent mat, Tussock land, Peppermint scrub and *Melaleuca lanceolata* thickets. Burrows were found from the coast to the top of the island, and were most common in the tussock land and teatree forest.

In October three chicks were found, all were in down with the primary wing and tail pins just bursting. A number of birds were still coming in at dusk, but from their numbers it would appear that most of the chicks had fledged. In May there were large numbers arriving at dusk, and frequent calling throughout the night. Some birds had laid and were incubating. Occasional fresh eggs were found on the surface. They were very common in the surrounding sea, and in May a raft of 30 to 40 birds was seen near the island.

Black Cormorant, *Phalacrocorax carbo*. One bird seen on the north coast in 1971. Not recorded by Storr.

Australian Goshawk, *Accipiter fasciatus*. In May 1971 one pair nested in a *Callitris preissii*, 15 m above the ground. The two chicks were in down but with the primary wing feathers well developed. A Great-winged Petrel with its brain peeked out was found under the nest. Not recorded by Storr or in 1976.